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ABSTRACT

This paper discusses a method of eliciting parental self-reports about child-rearing behavior. The method, called computer-presented social situations (CPSS), uses vignettes that are presented on computers. Several studies examined: (1) what mothers think about the technique; (2) reliability of data collected by the technique; and (3) validity of data compared to actual maternal behavior. In one study, mothers responded through computers, questionnaires, or interviews to 24 questions concerning child misbehavior vignettes. The CPSS was rated more favorably on four factors than were the other methods of eliciting self-reports, but were rated less favorably on expression than was the interview. A second study failed to replicate these results. In a third study, mothers responded twice, before and after a two-week interval, to a 104-question CPSS program. Test-retest results were acceptable and compared favorably with other methods. In a fourth study, mothers were observed on a visit to a supermarket with their children, and responded to a CPSS program about child misbehavior during the visit. The overall agreement between mothers' observed behavior and intentions assessed by means of the computer was 36 percent. A reference list of six items is included. (BC)

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Computer-elicited parental self-reports: Reactions to, reliability, and behavioral validity

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Computer-elicited parental self-reports: Reactions to, reliability, and behavioral validity

I'd like to talk this morning about some of what I've learned in developing and testing a new method for eliciting parental self-reports about their child-rearing behavior. Collecting self-reports, let me acknowledge from the beginning is a dirty business, but sometimes someone has to do it. It has to be done in order to: 1) assess low frequency behaviors-such as parental use of physical punishment, 2) avoid infringement on a family's privacy, or 3) collect data in a limited amount of time, among other reasons.

Social developmental researchers have long relied on self-reports (at least since the 1930s) and will continue to. The question is how can we do it well? I've previously argued that global attitude questionnaires are not the way to do it (Holden & Edwards, 1989). Instead, I'm convinced that context specific vignettes are much better (a method originally pioneered 35 years ago by Jackson, 1956). And, I believe the best way to present these is on microcomputers. The approach I've been working on I label "computer-presented social situations" (CPSS) to highlight the two key features, context specific situations are presented on microcomputers. The presentation of vignettes on computers offer a number of advantages (Table 1).

Some of these advantages are: 1) the interactive quality of computers makes them enjoyable, engaging, and interesting; 2) they can be operated in private to ensure confidentiality and reduce the likelihood of evaluation apprehension; 3) one can readily create situationally specific vignettes which can be personalized with names and detailed information; 4) it allows for the examination of social cognition processes; and 5) computers of course have the advantages of it allows for such options as covert and efficient branching, systematic manipulation of variables, and automatic data reduction (see Roid, 1986).

To give you an example, my first effort focused on examining a common problem solving process--how parents as well as non-parents diagnosing why a baby was crying. Subjects selected key information from the computer to evaluate which of 9 competing hypotheses was the single correct one (see Holden, 1988). I could then examine such variables as the types of information

the subjects selected, at what point in their information search they selected it, and what hypotheses they selected.

Rather than talking about that work, I will focusing on how I've been using the technique more recently to elicit parental reports about themselves and their families. Specifically, I will be talking about 1) what mothers think about using the technique compared with more traditional self-report methods; 2) how reliable self-report data are when collected by this method; and 3) how valid the self report data when compared with actual maternal behavior.

Subjective Evaluations of the CPSS method

The central purpose of this study was to assess mothers' reactions to the CPSS technique, in comparison to the two traditional approaches for eliciting self-reports--interview and questionnaire. Seventy mostly (73%) college-educated mothers of 3-year-old children participated. The design of the study was a one-way ANOVA with 3 levels of Method (Computer, Questionnaire, Interview). In each condition, mothers made 4 likert-type ratings to the identical 6 child misbehavior vignettes for a total of 24 ratings. For example, one question concerned how likely they would be to use three different disciplinary responses after their child ran into the street. It took about 20 minutes to participate. Reactions to the task were then collected on 16-item evaluation questionnaire.

There was a significant multivariate effect for Method on the evaluation questions. Half of the 10 key items were significant (Table 2). The CPSS was rated more favorably than one or both of the other methods as it was more enjoyable, less anxiety provoking, perceived as shorter, and elicited more honest responses. However, as predicted, it was rated as lower on "ability to express own views" than the interview. No effect of previous computer use in the evaluations was found.

My reaction to this data was it was a good pilot study but let's get more significant effects by making the procedures longer. So in a second study, involving 60 mostly (63%) college-educated mothers of 3-year-olds, we had them do the same procedures but with more questions-a total of 66 that were embedded in context-specific situations dealing with an average day in the life of their children.

Again, mothers were randomly assigned to one of three conditions: Computer, Survey, or Interview. The survey came out to be 20 pages long. Again, the identical information was collected in each condition. We reduced the evaluation questionnaire to include only 7 key questions.

As you can see from Figure 1 (and Table 3), we found no overall significant group differences and very little variation among the means. For some reason, the longer task washed out the differences found in Study 1. My guess is that mothers liked responding to these vignettes questions about their kids--whether it be on paper, interview, or computer. In conclusion, mothers' subjective evaluation of the CPSS method was very favorable--if not more favorable than other, more standard methods.

The Reliability of CPSS Data

A second type of study we have done to evaluate the quality of the information collected from the CPSS technique is to examine the test-retest reliability of the data. In this study, 20 mothers of 3- year-olds responded to a CPSS program containing 104 questions. Then, about 2 weeks later, they operated the same program. (This program was used in a study with battered women [Holden & Ritchie, 1991]). About half were Likert-type rating scales about frequency of behavior (e.g., "How frequently does your child ...", probability of behaving in a particular way (e.g., "How likely would you be to ...), or perceptions (e.g., "How important is it that ..."). The other questions used a multiple choice format to assess family decisions (e.g., "Who decides what [child's name] will wear in the morning"), maternal reports of her disciplinary practices ("What would you do if [child's name] made a big mess with his/her toys"), and maternal reports of her husband's behavior ("What would [father's name] do if he were handling this problem?").

The test-retest results were very positive. With the rating scale data, intraclass correlations were computed (used because of the non-independent rating data) . 86% of the correlations were significant, with about 75% being highly significant ($p < .001$). The modal correlation was .65 (range .91 to .01). Only three out of the 47 correlations did not reveal even a trend toward a significant relation across the two testing times (see Figure 2).

With the multiple choice questions, using a conservative requirement of exact agreement across the two testing times, we found an average agreement of .70, (range 100 to 40%). Seventy-five percent was the modal agreement--indicated that on half of the questions, at least 3/4 of the mothers reported the exact same response on the two testing occasions. Eighty-one percent of the questions had exact agreement at 60% or higher (see Figure 3).

The reason for some of the low agreements or correlations is evidently the probabilistic nature of parental behavior. In addition, this study clearly indicates two variables are key for the reliable reporting. One is the content of the question and the second is some individual difference characteristic of the mothers--some were much more reliable than others. We are investigating both of those variables further. However, the overall conclusion of this study is that the test-retest results of this self-report data are quite acceptable and compare favorable with other methods -- such as attitude questionnaire data.

Behavioral Validity of Self-Reports on the Computer

The last study I will report on was designed to examine the relation between behavioral intentions elicited on the computer and observed behavior. Twenty-eight mothers and their 2 1/2-year-old children were observed during a visit to a supermarket of their choice. One week later, the mothers operated a CPSS program that simulated a child's misbehavior during a trip through the supermarket. The target questions on the computer program concerned how the mothers would respond to the misbehavior. Mothers then selected, in a multiple choice format, one of six basic responses (identified in a previous study [Holden, 1983]).

We assessed the validity of their self reports by calculating exact agreement in the following procedure. First we looked at the observational data to identifying the target events of child misbehavior; next we identified how the mother responded in the supermarket; then we looked at the print-out of her response to the same type of incident on the computer simulation. If the mother reported that she would respond in the same way that we observed, then that was coded as an agreement. If not, then that was coded as a disagreement.

The overall exact agreement between mothers' observed behavioral responses and their behavioral intentions assessed on the computer was only 36% (Table 4).

However, for a salient class of maternal behaviors--primarily when the mothers had to use a power assertive type of response--the exact correspondence was quite respectable with an average of 72%. But with less salient responses, such as reasoning, consenting, or ignoring a misbehavior--the correspondence was low. Again in this study there was evidence of some individual differences operating as revealed by the six most accurate mothers averaged 61% of exact agreement across all categories.

Conclusion

So I want to summarize what we've learned about this methodology. First, mothers do like it. It is unclear whether they like it better than more traditional ways, but it certainly doesn't do any worse, in terms of their subjective evaluations. Second, the vast majority of the questions responded to in this format of context specific vignettes demonstrate at least acceptable test-retest reliability and in some cases excellent reliability. Finally, we've demonstrated some validity to the self-reported behavioral intentions. In particular, those questions that deal with salient maternal responses appear to be quite accurately reported.

With the technological afforded by microcomputers, progress in developing improved self-reported measures of parental behavior for the study of social development is on the horizon.

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Table 1. Potential advantages of the CPSS technique

1) Interesting, engaging, and enjoyable
2) Confidential and anonymous--removes experimenter from situation
3) Creation of context specific "problem space" is readily achieved
4) Examine social cognition processes
5) Computer allows for discreet branching, systematic manipulation of variables, automatic data reduction and analysis

Table 2. Significant group differences in maternal evaluations of the methods--Study 1

Variable	Significance Level	Groups that differed
Enjoyment	.06	C > I
Anxiety provoking	.05	I > C, Q
Subjective sense of duration of task	.01	Q > C
Ability to express own views	.001	I > C, Q
Honesty of responses	.01	C > Q

MANOVA = $F[32, 98] = 2.36$, $p < .001$
Key: C = CPSS, I = Interview, Q = Questionnaire

Table 2 (cont.) Means for group differences in maternal evaluations of the methods-Study 1

Variables	Groups		
	Computer	Interview	Questionnaire
Enjoyment	6.1 (liked very much)	5.4	5.8
Nervous	1.2 (Not at all)	1.8	1.3
Duration of task	3.4 (Fairly short)	3.7	4.0
Express own views	5.0 (Fairly well)	6.0	4.8
Honesty of responses	6.8 (Completely)	6.6	6.3

Table 3. Means for group differences in maternal evaluations of the methods-Study 2

Variables	Groups		
	Computer	Interview	Questionnaire
Enjoyment	6.3 (liked very much)	5.8	5.8
Nervous	1.6 (Slightly)	1.3	1.6
Express own views	4.8 (Fairly well)	5.1	4.9
Honesty of responses	6.2 (Very)	6.3	6.3
Judged	2.3 (A little)	1.4	2.4
Duration of task	3.9 (Right)	4.1	3.8
Realistic	5.6 (Fairly)	5.7	5.7

MANOVA = $F[14,96] = 1.14$, $p < .33$

Table 4. Supermarket Study: Percent Exact Agreement Between the Observational and CPSS Data

Child Behavior	Maternal Response				
	Reasons	Power Assertion	Diverts	Consents	Ignores
Opens Grocery	74 (14/19)	79 (11/14)	50 (21/42)	31 (15/49)	0 (0/6)
Plays with Grocery	23 (5/22)	100 (13/13)	0 (0/1)	0 (0/4)	0 (0/1)
Reaches for Grocery	15 (3/20)	75 (21/28)	--	0 (0/7)	0 (0/2)
Requests Item	21 (37/173)	71 (35/49)	53 (16/30)	21 (15/70)	0 (0/36)
Wants Candy	0 (0/8)	100 (6/6)	--	0 (0/2)	0 (0/8)
Marginal	78	57	51	19	0

Notes. A dash indicates a structural zero because that response was not available in the CPSS. The numbers in parentheses indicate the observed frequency of exact correspondence over correspondence plus non-correspondence. For example, the numbers "14/19" below the mean of 74 in the top left cell of the table indicate that mothers were observed to use power assertions as a response to their children's opening a grocery on 19 occasions. In 14 instances, the same mothers also selected a reasoning response to that situation on the CPSS.

Figure 1.

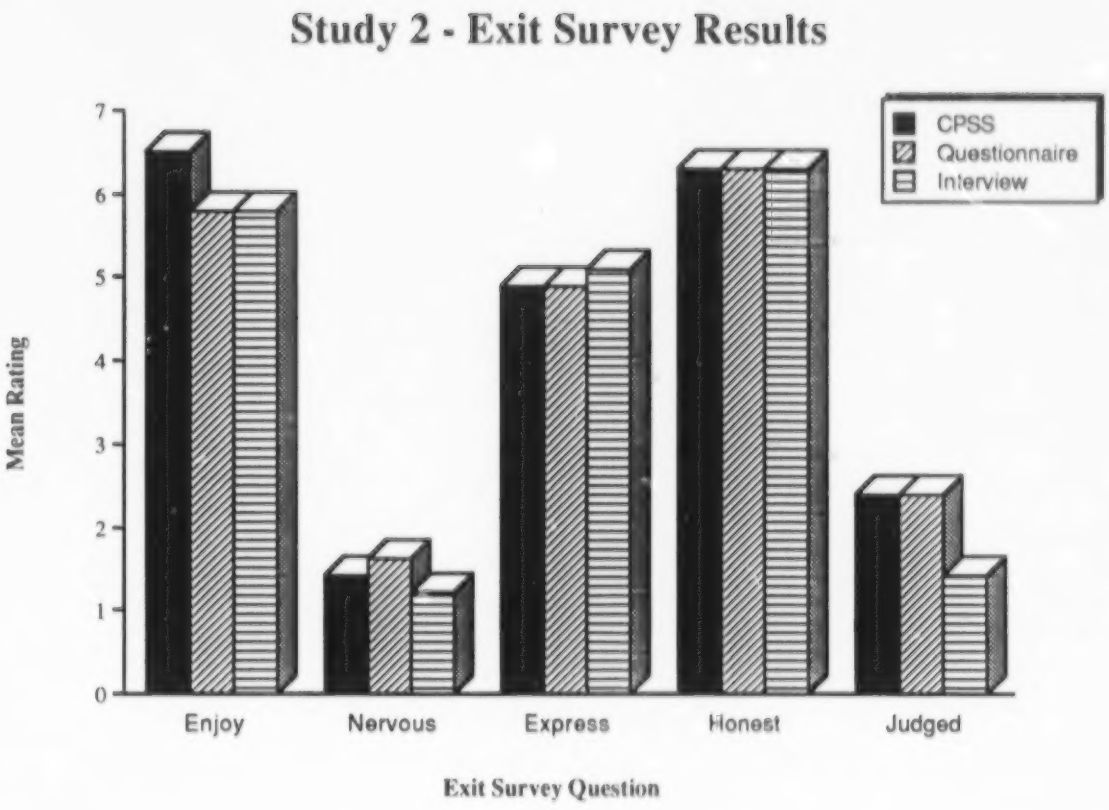

Study 2 - Exit Survey Results
CPSS
Questionnaire
Interview
Mean Rating
0
1
2
3
4
5
6
7
Enjoy
Nervous
Express
Honest
Judged
Exit Survey Question

Figure 2.

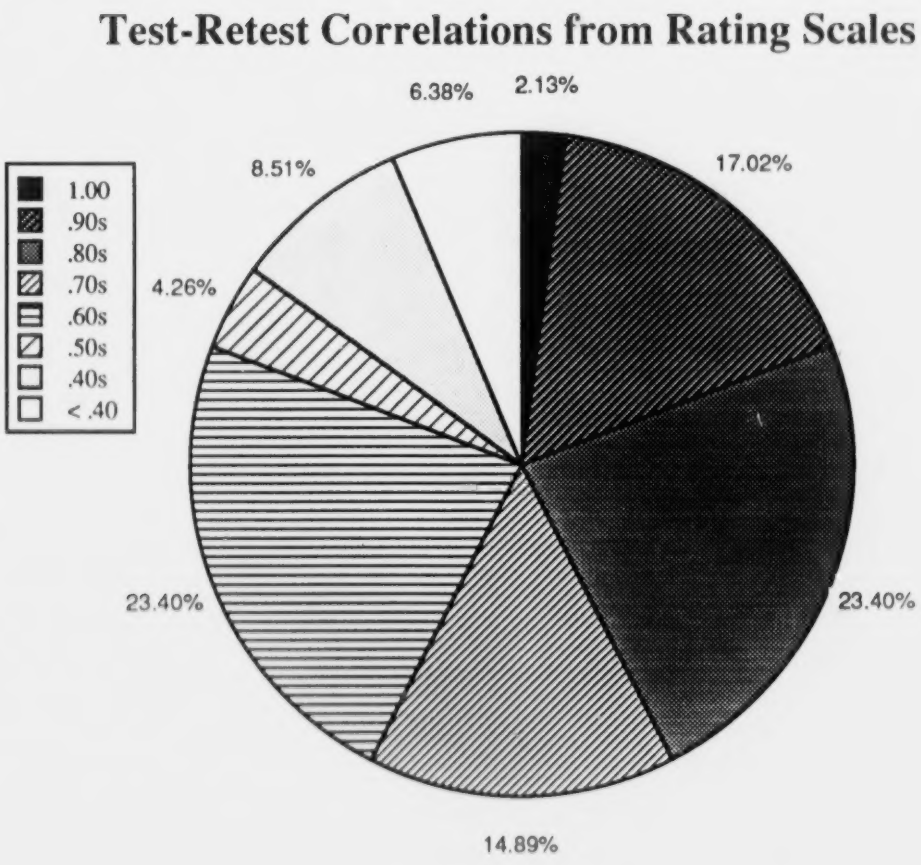
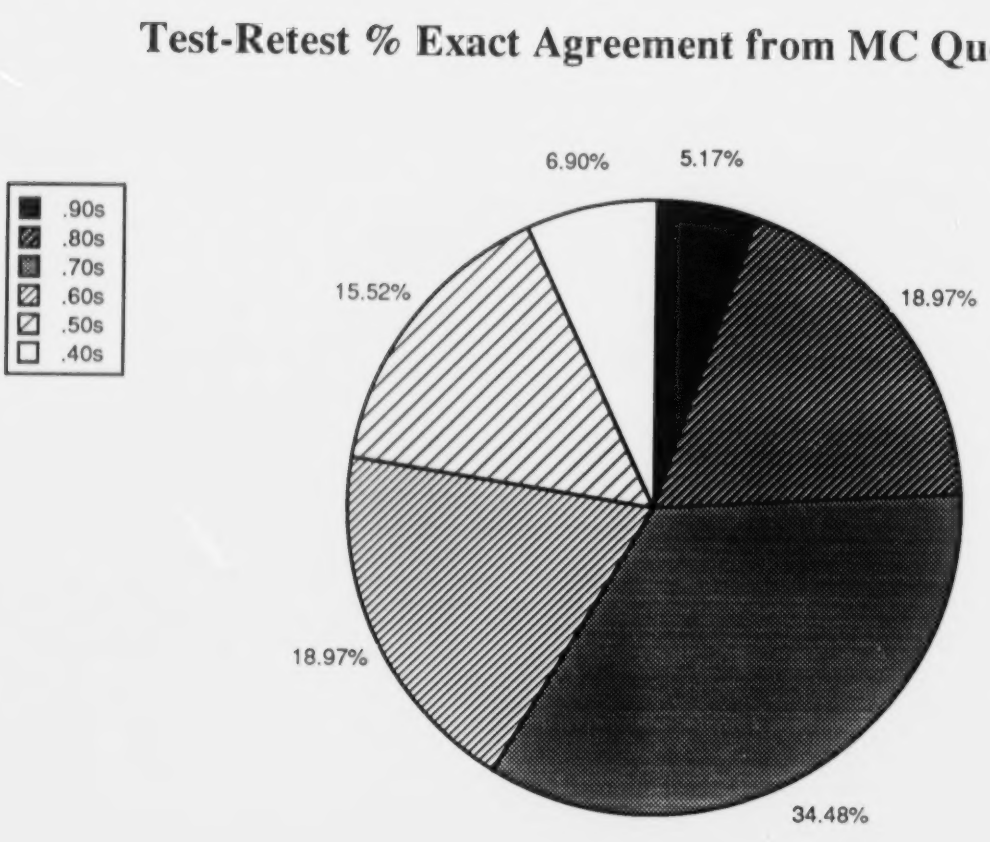

Test-Retest Correlations from Rating Scales
1.00
.90s
.80s
.70s
.60s
.50s
.40s
< .40
2.13%
17.02%
23.40%
14.89%
23.40%
4.26%
8.51%
6.38%

Figure 3.


Test-Retest % Exact Agreement from MC Questions
.90s
.80s
.70s
.60s
.50s
.40s
6.90%
5.17%
15.52%
18.97%
18.97%
34.48%